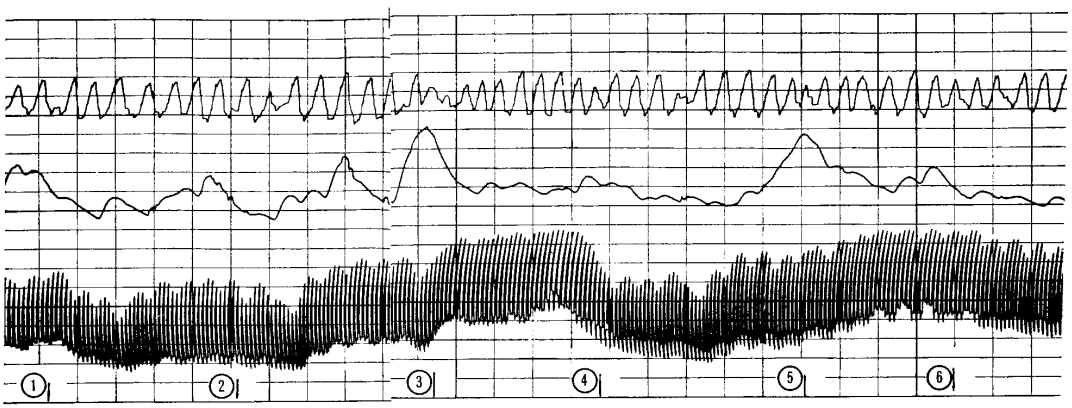
RECORD OF A POLYGRAPH TEST

"Interpreting the peaks and valleys on a lie-detector graph is like trying to determine from a weather map if it is going to rain on your street tomorrow." Shown here is a section of such a graph, taken from an actual test given to a 41-year-old murder suspect at the defense attorney's request. First the examiner and suspect went over all of the questions that were to be asked in the course of the test. Then instruments were connected to the suspect's chest, palm and arm, and the examiner began: "Please sit quietly with your feet on the floor. Look straight ahead and try not to move . . ." Two lead-in queries —"Were you born in the U. S.?" and "Regarding the killing of Phyllis ——— do you intend to answer truthfully each question?"—were followed by six key questions recorded by the three lines on the chart: breathing pattern (top), perspiration rate (middle), pulse and blood pressure (bottom). The numerals indicate the point at which each question was asked. The questions and answers, with the examiner's comments on them (in italics), appear below.



1 Q—Are you completely convinced I will not ask you a question during this test that has not already been reviewed? A—Yes.
(No reactions indicated. Subject is confident he will not be asked unexpected questions.)

2 Q—Between the ages of 30 and 38 did you ever deliberately hurt someone who trusted you? A—No.
(No reactions indicated. Subject is unconcerned with this relatively unimportant "sample-reaction" question.)

3 Q—Did you choke Phyllis ——— to death? A—No.
(Distinct reactions on all three tracings. Subject is attempting deception about his lack of involvement in Phyllis's murder.)

4 Q—During the first 21 years of your life did you ever deliberately hurt someone who trusted you? A—No.
(No reactions indicated. Subject is relieved when asked a relatively trivial question.)

5 Q—Regarding Phyllis's murder—did you in any direct manner cause her death? A—No.
(Distinct reactions on all three tracings. Blood-pressure reaction prolonged. Subject attempting deception regarding lack of responsibility for Phyllis's death.)

6 Q—Is there something else you are afraid I will ask you about, even though I promised you I would not? A—No.
(No reactions indicated. Subject trusts examiner.)

A few days after the suspect took this test, he changed his plea from not guilty to no defense and was sentenced to 30 years in prison.

Lie Detectors Don't Lie, But—

By WALTER GOODMAN

IT is about forty years since the lie detector obtruded itself upon us, and for most of that time it has been under attack as an unreliable, inhumane and immoral device. Our higher courts have spurned it. Psychologists have debunked it. Civil libertarians have denounced it. Journalists have exposed it. And a few weeks ago an intelligence expert announced that it was depriving the Free World of manly spies.

Dr. Stefan T. Possony, director of international studies at the Hoover Institution on War, Revolution and Peace, warned that the use of the instrument in pre-employment screening by the Central Intelligence Agency had, for example, opened the spying field both to homosexuals, who lack all guilt about their deviations, and to Russian agents, who are trained to outwit it. If experience is any guide, the lie detector industry will weather this latest assault and continue to prosper.

There is not much question that it is prospering, although details are traditionally elusive. For what information we have, we are largely in debt to a House of Representatives subcommittee on government operations, headed by Representative John E. Moss, Democrat of California, which embarked last spring on the first full-scale investigation of the lie detector mystique. It was prompted by the indignation of Representative Cornelius E. Gallagher, Democrat of New Jersey, upon learning that a 17-year-old girl had been asked "many questions concerning not only her private life but her sex life" while trying to get a job as clerk-typist with an unnamed body that Representative Gallagher hinted was the National Security Agency.

THE Congressmen, naturally, are mainly interested in the use of the lie detector—or the polygraph, as practitioners prefer to call it—by the Federal Government. Our executive branch, not counting its superSecret limbs, owns 512 polygraphs, with which it carried out 19,122 tests in the fiscal year ended June, 1963. The House survey was won easily by the Army, which gave 12,494 tests that year, a quarter of them to Cuban émigrés seeking to enlist. The Federal Bureau of Investigation reported giving 2,314 tests. Two bodies not included in the over-all figures are the Central Intelligence Agency and the National Security Agency, the Defense Department's intelligence arm; both use lie detectors on a routine basis, and if they chose to tell how many tests they gave, the statistics would make a mighty leap upward.

Polygraphy is popular in the private domain, too. Several hundred firms are busy servicing major companies in steel, copper, meat packing, food processing, drugs, oil and electronics. Cleve Backster, whose Backster School of Lie Detection occupies a set of slightly surrealistic offices on West 46th Street, serves such local firms as Carey Transportation, for which he screens "everybody from grease pit to executive suite." Continental Baking, which is worried about the safety of its bread in transit, and Alexander's department store, which channels all security personnel through the lie detector and also orders a test now and then to catch a thief, Mr. Backster, who claims that he helped set up the C. I. A.'s polygraph program in 1948, charges from $25 to $35 a test for his standing accounts and slightly more for transients; the unit price goes down as the volume goes up.

AT the center of this somewhat mysterious trade is an altogether unmysterious instrument. (Men in the line dislike hearing them called machines almost as much as they dislike hearing themselves called operators; they are examiners.) The lie detector in common use today was developed in 1926 by a criminologist named Leonarde Keeler. He incorporated into what one authority calls "a fairly crude piece of instrumentation" 30 years of experiments by others on the connection between lying and certain physiological phenomena. The lie detector's areas of competence, in the picturesque language of Representative Henry S. Reuss, Wisconsin Democrat, are: "Does he sweat? Does he palpitate? Does he pant?"

Three devices are attached to the subject's body—a pneumograph, a corrugated rubber tube around the chest that expands and contracts as one breathes; a sphygmomanometer, an inflatable rubber cuff around the upper arm, familiar to anybody who has ever had his blood pressure taken; and two electrodes on the hand to measure the subject's "galvanic skin response" that is, ultimately, how damp his palm gets.

Each of these devices is attached by a rubber hose to a pen whose point touches a moving strip of graph paper. If the subject's breathing, blood pressure and pulse and perspiration proceed at a regular rate, then the three pens will make regular little waves on the sheet of paper—which, by the way, accounts for the word "polygraph," Greek for "many writings." Should there be an abrupt change in any of the physiological responses, then the attached pen will make a bigger wave, and if the examiner is paying attention, he will notice it.

The man behind the polygraph, of course, does not really care about the rhythms of his patient's internal organs. What intrigues him is any abrupt change in response to a critical question, such as whether the subject murdered his wife, helped himself at the cash register or enjoys homosexual play. The faith of the examiner is that a false answer to this kind of question will play havoc with the liar's emotions, which will in turn speed up his heartbeat, disturb his breathing and/or make him perspire.

CONSIDERABLE skill and experience are required to formulate, conduct and interpret a polygraph test. The questions must be carefully phrased to eliminate ambiguity. (A murderer once got away with saying he hadn't murdered Mabel because he was thinking of a different Mabel.) They should include a "stimulation-to-the-innocent" question like "Have you ever stolen anything in your life?", at which even a citizen of blameless character is supposed to remember something that will make the pens dance. Several neutral questions, like "Is today Wednesday?", are inserted to establish the normal level of response.

The examiner must talk with the subject beforehand to make certain that he is not a lunatic, because anybody who knows he is Napoleon will come through the test without a blemish. The examiner must also weed out the distraught and the distracted, the drunk and the drugged. He must control himself, since any hint of hostility on his part may so rattle his client that the graph will come out looking like a tracing of the Himalayas.

He must keep his strapped-in companion calm and quiet, since wised-up criminals sometimes try to arouse the polygraph at irrelevant moments by wiggling their toes), but he must also get him psychologically primed for the crucial question about whether he used hemlock on his wife or a piece of pipe. This is accomplished by going over all the questions with the suspect before he takes the test.

If the subject is not a murder suspect, but merely a job applicant, then the questions range more widely in search of indiscretions, the idea in this case is to locate the areas in which an employer might some day prove vulnerable. If a man seems to be answering suspiciously, the examiner is supposed to pause and give him an opportunity to confess or explain or otherwise relieve his conscience. The test, which takes between five and ten minutes, is given to the subject two or three times, as a rule.

THE job of interpreting the peaks and valleys on the graph is rather like trying to determine from a weather map if it is going to rain on your street tomorrow. Since a sensitive honest man may show more dramatic reactions on his graph than a phlegmatic criminal, it is up to the examiner to decide in each case how high a peak must rise before it means that his patient is lying; different examiners may arrive at different diagnoses of the same chart.

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Lie Detectors Don't Lie, But—

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screening, a cautious examiner can set his point of deception low enough so that he eliminates every liar, at the expense, unfortunately, of eliminating quite a number of non-liars as well. Researchers at Fordham University did a study for the Air Force in 1962 on the feasibility of replacing the living polygraph examiner with a computer. The idea turned out to be unfeasible because there are still no objective criteria for determining what degree of response on the polygraph indicates guilt.

J. Edgar Hoover, no great admirer of the polygraph, spoke for all concerned some years ago when he said: "The name [lie detector] is a complete misnomer. The machine used is not a lie detector. The person who operates the machine is the lie detector."

Writing in The Yale Law Journal, Prof. Jerome H. Skolnick cautioned that "lie detection requires *at least* as much interpretation as tests performed by clinical psychologists or various medical specialists. . . . It requires physiological, psychological and sociological judgments which even practitioners in those fields would draw only with caution."

WE lack a census of polygraph examiners, but best estimates place their number somewhere between 2,000 and 3,000. Only three states—New Mexico, Kentucky and Illinois—license the craft. New York nearly beat Illinois to it in 1963 when both houses of the State Legislature passed a licensing bill, but Governor Rockefeller did not sign it.

In most places, there is

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nothing except price which, in the catalogue of the nation's major manufacturer, ranges from $675 for a 2-pen Portable Deceptograph to $2,025 for a 4-pen Deluxe Desk Deceptograph to keep an ambitious private eye from buying a polygraph, reading the instructions that come with it and setting to work sorting out the pure from the impure in supermarkets around the land.

Among the relatively reputable elements in contemporary polygraphy, the most rigorous requirements for examiners have been established by John E. Reid & Associates of Chicago, one of the half-dozen schools now in operation. The Reid school demands a college degree, six months of training and six months of work under supervision, and these requirements are reflected in the Illinois licensing law. Cleve Backster, however, labels them "snobbish," and indeed only a few dozen examiners have gone through such an ordeal.

The more usual program, such as that at the Army Provost Marshal General School at Fort Gordon, Ga., where a large proportion of Government examiners train, takes just seven weeks; that includes seven hours in abnormal psychology taught by a non-psychologist. A Pasadena, Calif., school which has been patronized by the United States Post Office Department charges $575 for a four-week course.

Prof. Fred E. Inbau of Northwestern University's School of Law and co-author with Mr. Reid of the only lie-detector textbook in existence, estimates that 80 per cent of the polygraph examiners now at large are unqualified. (By the standards of the American Psychiatric Association, the other 20 per cent are unqualified, too.)

WHATEVER reservations the colleagues in polygraphy may have about one another, they share a high regard for their instrument. An associate of John Reid claims that "we can make decisions in better than 90 per cent of the cases tested. . . . [with] an accuracy capability of less than 1 per cent error. . . ." Among the Reid firm's satisfied clients is the security director of a large Chicago retail store, who reports that thefts among employes who have not enjoyed a pre-employment test run ten times higher than among those who have.

Even its most implacable critics concede that the polygraph can, in appropriate circumstances, trip up the guilty, and polygraphers are able to produce a sizable dossier of crimes which have been solved with their help, beginning with Leonarde Keeler's success in 1944 in finding the killers of a German prisoner of war, which started the Army's love affair with his invention. Professionals take special pride in the case where a rape suspect's innocence was first in-

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dicated by a polygraph, when all the other evidence was against him. "My greatest satisfaction," says Cleve Backster, "is where a guy who everybody thought was in the wrong turns out to be truthful. I like to think of the polygraph as a truth detector." Mr. Backster, who is lobbying for a New York licensing statute that will weed out unfastidious examiners, has designed his own two-way mirror

TRIAL RUN—Cleve Backster (foreground), polygraph expert, and an assistant show how the lie detector works.

through which a third party can watch tests in progress; he is also able to record his tests in stereo.

THE lie detector's critics concentrated particularly in the fields of psychology and law—grant that the instrument is better than a coin when it comes to catching specific lies about specific crimes, but they demur at the polygraphers' claims to phenomenal reliability. Only a small percentage of detector decisions can be verified. Persons found to be telling the truth on the polygraph are not likely to proclaim afterward that they were fibbing all along, and persons judged to be lying do not as a rule confess.

Laboratory tests made at Fordham University indicate that the polygraph's accuracy is closer to 70 per cent than to 90 per cent, and that's assuming the examiner is honest.

The main defect of the whole process, in the critics' view, is that the examiner doesn't know what he is measuring. As one set of psychologists has pointed out: "There is no way of identifying the emotion by study of physiological changes." Any number of extraneous emotions such as irritation at having to answer personal questions from a fellow who you have every reason to believe is not deeply committed to your welfare may jar the pens. On the other hand, if the testee wants to hold his breath for the fun of it, he can do that, too. The best way to beat the lie detector is to show excite-

ment at the wrong questions.

Nor are critics consoled by John Reid's assurance that an examiner who can't distinguish one type of reaction from another "is not much of an examiner." Psychiatrists insist that the unconscious is tricky terrain, and it is easy to be misled if you try to map it with a sphygmomanometer.

THE asserted deficiencies of the instrument and its users have aroused special concern in job-screening, where the lie detector reputedly eliminates one out of every three or four applicants. Writing in The Harvard Business Review in 1962, three students of the polygraph summed up:

"An individual is persuaded by social pressures to testify against himself through a distorted, error-ridden medium; he may be denied the right to work without ever knowing the reason why; he may be 'convicted' of certain 'tendencies' without having committed an illegal act; and he has no defense against the operator's report since it is unknown to him and he has

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